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ABSTRACT

This quantitative, descriptive research study measured the attitudes of preservice teachers toward the selection and use of instructional media in the classroom. Two groups were involved in the study: approximately 168 students enrolled in formal training in the selection and utilization of instructional media, and approximately 170 preservice teachers completing their student teaching requirement. A preassessment instrument was designed to obtain data on the subjects, and an attitude survey was developed that contained eight specific categories to measure the subjects' degree of agreement toward the selection and utilization of instructional media. These categories were: (1) the contribution media can make to instruction; (2) the positive attributes of instructional media; (3) the future use of instructional media; (4) taking a required course in instructional media; (5) present attitude toward teaching with instructional media; (6) the conditions of using instructional media; (7) course specific perceptions; and (8) attitudes toward systematic lesson planning techniques. Five hypotheses were tested. The preassessment profile indicated that the subjects enrolled in formal training of instructional media began the course with no skills or experience in using the selected media, materials, or formal lesson planning techniques. Based on the final results of the study, it was concluded that a formal course in the selection and utilization of instructional media can function as a primary factor in the development of students' attitudes in a positive direction, and that the most frequently used of the 10 media listed were the personal computer, overhead projector, and television. A discussion of the implications of these findings and suggestions for future study complete this report. (40 references) (BBM)

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An Assessment of Teacher Trainees' Attitudes Toward Selected Instructional Media

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Introduction

Life in the information age is predicted to be easier and more productive. The common use of modern technology, such as the use of robotics, electronic information retrieval and communication, as found in teleconferencing and electronic mail, and in voice and computer controlled simulated environments, will enable work to be completed more accurately and faster. Generally, those who can adapt and be trained to deal with this new technology will prosper. Those who cannot adapt and be trained will fall behind and become information deprived (Jonassen, 1984). Likewise, those teachers who are not trained in this new technology will not only fall behind and become information deprived, but their students will also be affected.

Power on! New Tools for Teaching and Learning, prepared by the United States Congress Office of Technology Assessment, purports that there is a willingness on the part of school districts, schools, teachers, and parents to explore the use of new learning technologies. Growth in use has been impressive and indications suggest that the future use of technology remains strong. However, present conditions still indicate that (1) the majority of schools do not have sufficient hardware, (2) students spend less than one hour per week using a computer, (3) poor and minority students have less access to technology, and (4) the vast majority of teachers have little or no training to use this technology (OTA, 1988).

Part of the focus on educational improvement lies with teacher training. It is the teacher who makes one of the critical decisions about instruction. Schools may change in the future, but it is how teachers view technology and their "preparation to use technology to instruct, manage and evaluate are critical to the better use of technology in the curriculum" (Glenn and Carrier, 1989).

At the university level, schools of education are currently being required to revise their preservice teacher education programs and include training in the use of technology in the classroom. There are approximately 1300 institutions in the United States that educate teachers and prepare them for licensure. While California has legislated that all teachers must complete a technology training component, other states are moving toward mandating technology training as part of the licensure process for beginning teachers (Glenn and Carrier, 1989). A 1979 Association of Educational Communications and Technology (1982) survey disclosed that 36 percent of the states had no media requirements in teacher education programs, while 64 percent of the states required limited media instruction. There were, however, four states, Louisiana, Ohio, Oregon, and Wyoming, that required media standards. In a 1989 survey, 18 states and the District of Columbia, required that all students in their teaching degree programs or those seeking certification take a course on computer topics or demonstrate familiarity in using technology for instruction. Yet half of the states neither require nor recommend technology preparation for new teachers (Fulton, 1989).

A survey conducted by the American Association of Colleges for Teacher Education asked faculty and students in 90 member institutions to evaluate the effectiveness of their teacher education programs in preparing classroom teachers. For most aspects of teaching, e.g., planning instruction, evaluating students' learning, using proper teaching methods, etc., the report was positive. More than two-thirds of education faculty and students considered graduates to be prepared to assume tasks of classroom teaching. In the preparation of using technology, however, the results were not as positive. Fewer than one-third of the students reported they thought they were prepared to teach using technology (Fulton, 1989).

There is a need to train teachers in the selection and utilization of instructional media in powerful ways to significantly enhance learning and thinking. The effective selection and use of instructional media in the classroom is a way to improve content mastery and student thinking skills. It also increases individualized

instructional opportunities, improves student attitudes towards learning, and it prepares students for a technology-oriented society. Instructional media also can increase teachers' job justification and increase the cost-effectiveness of instruction (Boe, 1989).

Significance of Study

The assessment of attitudes of trained and untrained preservice and full-time teachers toward the selection and use of instructional media has been researched since 1959 (Kelly, 1959; Cole, 1964; Acquino, 1968; Wheller, 1969; Lasher, 1971; Jenkins, 1972; Welch, 1974; Long, 1974; Kreamer, 1978; Jones, 1982). The results of these studies have produced a mixture of findings. Kelly, Cole, Wheller, Jenkins and Long found that preservice teachers were positively influenced toward the selection and use of instructional media upon the completion of formal training. It was reported that formal training produced the necessary intellectual and motor skills to create a positive attitude toward the selection and utilization of instructional media. However, Acquino found that formal training in instructional media produced negative results, while Lasher, Kreamer, and, Jones concluded that formal training did not significantly change the attitude of the preservice teachers or full-time teachers toward the selection and utilization of instructional media. The researchers further concluded that there was no relationship between attitude and the amount of professional training. Welch concluded that the attitude of the teacher was not a major factor in determining the utilization of instructional media.

It can be concluded that previous studies have not produced definitive attitudinal trends. As technologies of instruction have become more advanced and sophisticated, especially with the advent and development of the microcomputer, there is a need to ascertain and describe the accumulated knowledge concerning the attitudes of preservice teachers toward the selection and use of instructional media for several reasons.

First, this study identified and verified attitudes associated with the selection and utilization of instructional media for classroom instruction. Second, this study presented a report of preservice teacher attitudes toward selected instructional media and materials which can be reviewed and studied by other researchers. Third, while research related to this study was conducted in the late 50s, 60s and 70s, enough time has elapsed and the learning environment in schools and the role of the teacher has changed sufficiently to warrant up-dating current preservice attitudinal trends toward the selection and use of instructional media. And fourth, this study provided the assessment of preservice teacher attitudes and the shift in attitudes toward instructional media as a result of formal training and student teaching, of which the established body of attitudes can be used as a basis for further attitudinal research and curricular changes. What preservice teachers use and select as instructional media when planning instruction during student teaching may be an indicator of what may be selected and used when teaching full-time.

It can be inferred that a positive attitude toward instructional media during formal training should result in the successful demonstration and application of instructional media when teaching full-time. To require preservice teachers to receive formal training in the selection and use of instructional media, however, may or may not appear to be the independent variable that will determine its use by the teacher in the classroom. There may be other factors that have an influence upon the preservice teacher's decision to adopt instructional media in the systematic approach to the design of instruction. Therefore, how preservice teachers rated instructional media and materials provided additional information about the selection and utilization of alternative instructional delivery systems used in the classroom.

Statement of the Problem

The nature of the learning environment and the role of the teacher has changed significantly since the Kelly study and other studies have been conducted. Improvements and changes in selected technology of instruction for classroom use have occurred. It was apparent that there was insufficient current research that accurately defined the present status of preservice teachers' attitudes or changes in attitudes toward the selecting, utilizing, and rating of instructional media after formal training or after student teaching.

Research Questions

Given the stated problem underlying this study, the following research questions were designed to address the problem:

1. What are the attitudes of preservice teachers toward the selection and use of instructional media prior to formal training?
2. Are there positive changes in attitudes toward the selection and use of instructional media in the classroom after having received formal training?
3. What are the attitudes toward the selection and use of instructional media prior to completing student teaching?
4. Are there positive changes in attitudes toward the use of instructional media after completing student teaching?
5. Are there differences in attitudes toward the selection and use of instructional media between preservice teachers completing formal training of instructional media and preservice teachers completing student teaching?
6. Are there differences in attitudes toward the selection and utilization of instructional media between those preservice teachers prior to formal training and preservice teachers completing their student teaching?
7. How would preservice teachers enrolled in a formal training course of instructional media and preservice teachers completing student teaching rate specific types of instructional media and materials?
8. To what extent was instructional media available to preservice teachers completing student teaching?
9. To what extend did the supervising teacher use instructional med. in the classroom?
10. To what extent was instructional media used by preservice teachers during student teaching?

Hypotheses

The study was based upon the following hypotheses:

Ho1: Preservice teachers will have a more positive attitude toward the selection and use of instructional media after having received formal training in the selection and use of instructional media.

Ho2: Preservice teachers will have a more positive attitude toward the use of instructional media after having completed student teaching.

Ho3: There are no differences in attitudes toward the use of instructional media by preservice teachers taking a formal course in instructional media and preservice teachers completing student teaching.

Ho4: There are no differences in attitudes toward the selection and utilization of instructional media by preservice teachers prior to formal training and preservice teachers after completing student teaching.

Ho5: There are no differences in rating of media types and materials by preservice teachers enrolled in the selection and utilization of instructional media course and preservice teachers completing student teaching.

Survey of Literature

Learning psychologists advocate that learning should first come from direct experiences, second from the iconic representation of films, television programs, etc., and third from the symbolic experience of textbooks, lectures, etc. However, the symbolic representation is usually the first employed form of instruction which would include reading assignments, class discussions, teacher-directed presentations, question and answer sessions, etc. However, educational technologists would advocate that, ideally, the selection and utilization of instructional media should be employed as the learning transitional mechanism between the direct and symbolic experience prior to the symbolic stage.

Previous research has indicated that students learn from the use of instructional media incorporated into a well written lesson plan. Benefits from using instructional media include a vicarious learning experience, precise communication, increased interest in learning by the student, and increased options for learning.

When conducting research, the measurement of attitudes is difficult. Measuring a change in attitude requires using even a more complex procedure. Attitudes are dynamic due to the amount of outside stimuli constantly impacting upon the complexity of the attitude itself. To measure an attitude, the object of the attitude must have a precise definition, and the attitude must be observable. At best, the researcher relies upon an inference of the attitude since it is impossible to directly measure the attitude due its complexity. It is also important for the researcher, in an attitudinal survey, to measure and report the attitudes of the group and not the attitudes held by the individual subject.

To further complicate attitudinal research, there is no consensus among social scientists as to the definition of attitude. For this research study, Mueller's (1986) definition was adopted. The attitudinal object for this study was instructional media.

It was observed that several previous studies indicated that a positive attitude toward the selection and utilization of instructional media would result in increased use. This would support the common notion that a positive attitude produces a particular behavior. The survey of literature disclosed that attitudes do not determine particular behaviors. Attitudes, however, make certain behaviors more or less probable (Gagne, 1985). Attitudes can be described as response tendencies or the readiness to respond. The researcher cannot predict that a positive attitude toward the selection and utilization of instructional media will result in the actual selection of instructional media. The researcher should infer that there is a greater likelihood that preservice teachers will select and use instructional media after formal training and student teaching has been completed.

The survey of literature found that positive and negative attitudes were produced by formal training in the selection and utilization of instructional media. Kelly (1959), Cole (1964), Wheller (1969), Jenkins (1972), and Long (1976), found that preservice teachers were positively influenced toward the selection and use of instructional media upon the completion of formal training. Formal training produced the necessary intellectual and motor skills to create a positive attitude toward the selection and utilization of instructional media. However, Aquino (1968) found that formal training in instructional media produced negative results, while Lasher (1971), Kreamer (1978), and Jones (1982), concluded that formal training did not significantly change the attitude of the preservice teachers or full-time teachers toward the selection and utilization of instructional media. It was also concluded that there was no relationship between attitude and the amount of professional training.

The literature revealed there were several additional variables that could influence the selection and use of instructional media:

1. The presence of a full-time audiovisual coordinator, i.e., a school media specialist, formally trained in the selection and utilization of instructional media, would create a positive instructional media climate (Miller, 1969).

2. There is a positive relationship between the attitude of teachers and the support received from the administration (Kelly, 1959, Gray, 1971).

3. The value of the medium of instruction does not necessarily lie within the medium itself, but how it is perceived by the teacher and students (Dodge, et al., 1974).

4. Teachers are affected by how instructional media may be defined; traditional or innovative. Teachers held more positive attitudes toward traditional media than innovative media (Bish, 1967).

5. Teachers will display a negative attitude toward instructional media if they believe that it will replace them in the classroom (Everson, et al., 1978).

6. Teachers will display a negative attitude toward instructional media if it is described as technology (Everson, et al., 1978).

7. The attitude of the teacher is not the major factor in determining the selection and utilization of instructional media. An innovative curriculum is a better predictor of the selection and utilization of innovative instructional media; a traditional curriculum is a better predictor of the selection and utilization of traditional media (Seidman, 1986).

8. There is no relationship between subject area taught and the use of instructional media (Kelly, 1959, Jenkins, 1972).

9. There is no relationship between grade level and the use of instructional media (Jones, 1982).

10. The attitude of the teacher toward instructional media is not affected by a lapse of time when the teacher is formally trained in the selection and use of instructional media and when it is used (Aquino, 1974).

11. There is a positive relationship between the amount of teaching experience, the amount of media used, and the amount of professional training (Lasher, 1971).

12. Failure to deal with the negative attitude that instructional media will replace the teacher, may have a negative affect upon the teachers' attitudes (Everson, et al., 1978).

Methodology

This quantitative, descriptive research study measured the attitudes of preservice teachers toward the selection and use of instructional media at two levels of teacher training: preservice teachers enrolled in formal training of the selection and utilization of instructional media, and preservice teachers completing their student teaching requirement.

The nature of the learning environment and the role of the teacher have changed significantly since the Kelly study and other studies have been conducted. Improvements and changes in selected technology of instruction for the classroom use have occurred. Insufficient current research existed that accurately defined the present status of preservice teachers' attitudes or changes in attitudes toward the selection, utilization, and rating of instructional media after formal training or after student teaching.

Subjects

This study was limited to those students enrolled in the preservice teacher certification course, Introduction to Instructional Media, 310:201, at The University of Toledo, constituting the formal training group. The second group were those students completing their student teaching requirement for certification during Winter Quarter, 1991.

There were approximately 168 preservice students enrolled in the Introduction to Instructional Media course and approximately 170 student teachers completing their student teaching requirement during the 1991 winter quarter.

Instrumentation

Preassessment Instrument. An instrument was designed to obtain demographic data about the subjects enrolled in the formal training course, Introduction to Instructional Media, 310:201. The background information obtained from the subjects included gender, age, the grade level which the preservice teacher would teach, grade point average (GPA), and class rank. Part 1 of this self-reporting instrument obtained data that concerned the selection of media, degree of skill, and frequency of use. Part 2 dealt with the production of instructional materials, the degree of skill, and frequency of use. Part 3 was concerned with the use of systematic instructional design techniques, the degree of skill, and frequency of use. The purpose of this data was to increase external validity. This data served as a descriptive profile of the subjects involved in formal training of instructional media for this study (see Appendix A).

Attitude Instrument. A survey instrument was designed to ascertain the attitudes of preservice teachers enrolled in formal training and preservice teachers completing their student teaching.

The process of designing the attitude survey instrument first involved reviewing existing literature that contained surveys that assessed attitudes toward the use of instructional media. Several attitude surveys were reviewed, including Paul Dawson's Media Attitude Profile (Long, 1976), and a fifty-seven item survey and the modified version of this Media Attitude Profile (MAP) survey designed by Kreamer (1978). A third attitude survey, designed by Chi-Yin Ywen, was also examined (DelFrate, 1987). Second, areas of research interest were established. These areas included: (1) the contribution that media can make to instruction; (2) the positive attributes of instructional media; (3) the future use of instructional media; (4) taking a required course in instructional media; (5) present perception toward teaching with instructional media, (6) the conditions of using instructional media, (7) course-specific perceptions, and (8) perceptions toward systematic lesson planning techniques. The third step included the writing of specific response items. When the response items were written, the guidelines of the behavioral-tendency response items of *would* and *should*. were taken into consideration. *Would* items (Mueller, 1986) express a personal behavior intention toward the attitudinal object. *Should* items express a behavioral preference for social action. As a general rule, "items inquiring about respondents' actual behaviors should be omitted" (Mueller). Therefore, the response items included the term *should*.

The collection process. This study used the self-report method,i.e., the subjects were given an attitude survey instrument and were requested to report their own attitudes concerning each of the response items. This type of data collection procedure represents the most direct type of assessment (Henerson, Morris and Fitz-Gibbon, 1987).

The attitude survey instrument was reviewed by a panel of judges and changes were made upon recommendations. The survey instrument was tested during Fall Quarter, 1990 with subjects enrolled in the Introduction to Instructional Media course, 310:201. Further modifications were made based upon the results obtained

Semantic differential. The survey of literature also revealed another form of media evaluation in the form of a semantic differential, as was used by Elliott, et al., (1984). The purpose of using this semantic differential was to obtain the ratings of various types of media and materials used in Module 1, 2 and 3 for the Introduction to Instructional Media course as well as those preservice teachers completing student

teaching. This semantic differential offered the respondents sets of bipolar adjectives with a seven-point scale separating each set (Bellamy, et al., 1978). The respondents were asked to mark the scale point which most nearly represented their attitudes. The mean score across the groups of respondents provided data which served to establish a base line for selection and use trends by the subjects. Two forms of the semantic differential were administered. The first instrument was administered to the students enrolled in the formal training group which contained four sets of bipolar adjectives. The second form of the semantic differential was administered to the student teachers. This instrument had an additional set of bipolar adjectives and obtained data concerning whether the media were available or not available during student teaching.

Student teacher utilization profile. To obtain data concerning the selection and use of instructional media while the preservice teachers were completing the student teaching, a student teacher media utilization profile instrument was designed in a similar format as that used by Welch (1974). The purpose of this instrument was to establish the types and amount of media that were used by the preservice teacher when completing student teaching

Method of analysis

The pretest - posttest nonequivalent control group design was used to analyze the attitude survey for the first hypothesis (Wiersma, 1986), i.e., preservice teachers have more positive attitudes toward the selection and use of instructional media after having received formal training in the selection and use of instructional media. The same procedure was used to analyze the second hypothesis, i.e., preservice teachers have more positive attitudes toward the use of instructional media after having completed student teaching. A polled difference in gain scores from the pretest and posttest attitude scores was measured by using a *t* -test, two sample dependent means at the .05 level of significance (Hinkle, Wiersma, and Jurs, 1988), where:

Ho: $\partial = \mu 1 - \mu 2 = 0$ and Ha: $\partial = \mu 1 - \mu 2 \neq 0$.

This statistical procedure determined if there was a significant difference in attitude toward the selection and use of instructional media from the beginning of the formal training course to the end of the formal training. Both preservice intact groups received the attitude survey.

A postest nonequivalent control group design was used to test the third, fourth, and fifth hypotheses: (Ho3) there are no differences in attitudes toward the use of instructional media by preservice teachers taking a formal course in instructional media and preservice teachers completing student teaching; (Ho4) there are no differences in attitudes toward the selection and utilization of instructional media by preservice teachers prior to formal training and preservice teachers completing student teaching; and, (Ho5) there are no differences in ratings of media types and materials by preservice teachers enrolled in formal training and preservice teachers completing their student teaching. Pooled difference in scores were measured by using a *t*-test, two sample case, and independent means, where:

Ho: $\mu 1 = \mu 2$ and Ha: $\mu 1 \neq \mu 2$.

The statistical package SPSS-X was used to calculate the results (SPSS-X User's Guide, 1988).

To analyze the extent to which instructional media were available to preservice teachers while completing student teaching, survey data was compiled from the media rating instrument and the central tendency was determined.

To analyze the extent to which instructional media were used by preservice teachers and their supervising teachers while completing student teaching, the data was obtained from the Student and Teacher Utilization Profile and central tendency was determined. The statistical package SPSS-X was used to calculate the central tendency results for both sets of data.

Summary, Discussion, Conclusion, Implications, and Recommendations for Further Study

Summary

This study measured the attitudes of preservice teachers toward the selection and utilization of instructional media used in the classroom. Two groups of preservice teachers were involved in the study. The first group were subjects enrolled in a formal training course in the selection and utilization of instructional media. The second group of subjects were preservice teachers completing student teaching and had already completed a formal training course in the selection and utilization of instructional media.

An attitude survey was developed that contained eight specific categories to measure the subjects' degree of agreement toward the selection and utilization of instructional media. These categories included: (1) the contribution media can make to instruction; (2) the positive attributes of instructional media; (3) the future use of instructional media; (4) taking a required course in instructional media; (5) present perception toward teaching with instructional media; (6) the conditions of using instructional media; (7) course specific perceptions; and, (8) perceptions toward systematic lesson planning techniques.

The study was based upon five hypotheses which were supported by research questions:

Ho1: Preservice teachers have a more positive attitude toward the selection and use of instructional media after having received formal training in the selection and use of instructional media.

Ho2: Preservice teachers have a more positive attitude toward the use of instructional media after having completed student teaching.

Ho3: There are no differences in attitudes toward the use of instructional media by preservice teachers taking a formal course in instructional media and preservice teachers completing student teaching.

Ho4: There are no differences in attitudes toward the selection and utilization of instructional media by preservice teachers prior to formal training and preservice teachers completing student teaching.

Ho5: There are no differences in rating of media types and materials by preservice teachers completing formal training of instructional media and preservice teachers completing student teaching.

This study also provided demographic data concerning the type of subject enrolled in formal training of instructional media. The data disclosed that the majority of students were sophomores (58.6%) and juniors (22.8%) with the remainder of the students (18.7%) were freshmen, seniors, and undergraduates with degrees. The subjects had a combined mean grade point average of 2.83 on a 4.0 scale. The majority of students reported their preferred teaching level was elementary school (40.6%) and senior high school (28.7%). The remainder of the students indicated special education (16.8%), junior high school (4.9%) and K-12 (2.8%).

The preassessment survey concerning the amount of skill and use of instructional media, producing instructional materials, and lesson planning techniques, indicated that the subjects had limited or no skills. The frequency of use of instructional media, instructional materials, and lesson planning techniques also disclosed that the subjects' use ranged from occasionally to seldom used. Therefore, the preassessment profile indicated that the subjects enrolled in formal training of instructional media began the course with no skills nor having used the selected media, materials, or formal lesson planning techniques.

Also provided in this study was the amount of media used by student teachers and their supervising teachers. This data was obtained using a Student and Teacher Media Utilization Profile.

Discussion

Hypothesis 1: The pretest-posttest for Hypothesis 1, preservice teachers have a more positive attitude toward the selection and use of instructional media after having received formal training, revealed 21 significant differences and four (4) nonsignificant differences. The hypothesis was retained.

The following discussion is an analysis of the attitude survey by objective category.

Category 1: The contributions of instructional media. The formal training group strongly agreed that instructional media can present accurate information, can create interest and options for learning, and provide a vicarious learning experience.

Category 2: The positive attributes of instructional media. The subjects strongly agreed that a teacher should be at ease using instructional media. The subjects agreed that instructional media is just another way to teach and that instructional media was as good as, if not better than, traditional forms of teaching. The subjects were undecided or uncertain that nonprint media, such as film, a television lesson, etc., can provide all the necessary information for learning.

Category 3: The future use of instructional media. The subjects strongly agreed that when they are teaching they intended to use instructional media. The subjects agreed that a beginning teacher should incorporate instructional media into lesson plans.

Category 4: Taking a required course in instructional media. The subjects strongly agreed that a teacher should know how to use a variety of instructional media and agreed that a teacher should be required to take a course to learn how to use instructional media.

Category 5: Present attitudes toward teaching with instructional media. The subjects in all five survey items had a significant difference at the .0001 level. The subjects agreed that: (1) a highly motivated teacher uses instructional media when teaching; (2) when instructional media is used the teacher is using acceptable teaching strategies; (3) instructional media is a strategy employed by effective teachers; (4) using instructional media increases student learning; and (5) teachers who plan lessons that are learner centered use instructional media.

Category 6: Conditions of using instructional media. The subjects agreed that a teacher should use instructional media whether they are rewarded or not. The subjects were undecided as to whether or not instructional media should be used when needed, otherwise, traditional methods should be used. There was also no significant difference for this survey item.

Category 7: Course specific attitudes. The subjects strongly agreed to all items in this category although there was no significant difference for survey item 1, i.e., to be effective, a teacher needs to know how to produce instructional media properly. The subjects strongly agreed that: (1) a teacher should know how to properly use instructional media; (2) effective teachers should be computer literate; and, (3) to be effective, a teacher ought to know how to use instructional media properly.

Category 8. Systematic lesson planning techniques. The subjects were in agreement to both items, i.e., effective teaching requires systematic lesson planning, and systematic lesson planning is necessary for any teaching.

Hypothesis 2: The pretest-posttest for Hypothesis 2, preservice teachers have a more positive attitude toward the use of instructional media after having completed student teaching, yielded 24 no significant differences and 1 significant difference. The hypothesis was rejected. The attitudes of the students, once having been formally

trained in the principles of selection and utilization of instructional media, were maintained after student teaching.

Hypothesis 3: The posttest scores concerning Hypothesis 3, there are no differences in attitudes toward the use of instructional media by preservice teachers after taking a formal course in instructional media and preservice teachers completing student teaching, revealed 21 no significant differences and 4 significant differences. The hypothesis was retained.

Hypothesis 4: The attitude survey prettest for the formal training group and the attitude survey posttest for the student teachers, for hypothesis 4, indicated no differences in attitudes toward the selection and utilization of instructional media by preservice teachers prior to formal training and preservice teachers completing student teaching, revealed 17 significant differences in attitude and 8 no significant differences. The hypothesis was rejected.

Hypothesis 5: There are no differences in the rating of media types and materials by preservice teachers enrolled in formal training of instructional media and preservice teachers completing student teaching. The comparison between the rating of media by the formal training group and student teachers in hypothesis 5 revealed no significant differences. The hypothesis was retained.

Conclusion

From the discussed results of this study, the following generalizations can be made and serve as the conclusion.

1. This study adds a new segment to the literature indicating that undergraduates entering a teacher training program do not have developed skills in the selection and utilization of instructional media.
2. This study refutes previous research that concluded formal training in instructional media had either no effect or a negative effect on the attitudes of the subjects. This study has demonstrated that the intervention of a formal course in the selection and utilization of instructional media can function as a primary factor in the development of students' attitudes in a positive direction.
3. Students in a teacher training program who have developed a positive attitude toward the selection and utilization of instructional media after formal training will complete student teaching with as much of a positive attitude, or even stronger positive attitude.
4. Of the ten media rated, this study indicates the most frequently used media during student teaching were the personal computer, overhead projector, and television.
5. Based upon all the results of this study, a developed positive attitude toward the selection and utilization of instructional media is related to the positive affect toward the practice of systematic lesson planning by teachers.
6. The instrumentation used in this study was effective in assessing the attitudes of the subjects toward the selection and utilization of instructional media. Moreover, the rating of instructional media led to outcomes that were different than those reported in some of the reviewed literature.

Implications

Given the results of this study concerning the attitudes of preservice teachers toward the selection and utilization of instructional media, it is in the judgment of the author, there are several implications that may be offered in the areas of teacher training, and at both the state and national levels.

Teacher training. Preservice teachers who have acquired, through formal training, a positive attitude toward the selection and utilization of instructional media are more likely to use instructional media in their classrooms when they teach. This finding is due to the development of selection and utilization skills that have been

acquired during formal training. Conversely, there is a high probability that those teachers not having been trained in the selection and utilization of instructional media may possess negative attitudes toward its selection and may not use instructional media in their classroom. This lack of skill will negatively affect both the teacher and the students. It is important that a positive attitude toward instructional media be formed early in the preservice teacher training program. This will promote the selection and utilization of instructional media when teaching full time. A formal training course in the principles of selection and utilization of instructional media can shift the attitude of preservice teachers in a more positive direction. Formal training may be a factor in shaping attitudes.

The instructional design of course content and the presentation of course content in a formal training course in the selection and utilization of instructional media should be evaluated to determine the attitudinal effect upon preservice teachers.

It appears that once a positive attitude toward the selection and utilization of instructional media has been formed during a formal training experience, this positive attitude will be maintained throughout student teaching. The lapse of time between formal training and student teaching does not alter the attitude but reinforces the positive attitude.

If formal training is a factor in shaping a positive attitude toward the selection and utilization of instructional media, it would be appropriate to have all faculty and administrators who are involved in the teacher training program to receive similar training and for faculty to be encouraged to use instructional media in their teaching. This would reinforce the contribution of media to instruction and would also provide positive role models for students who are enrolled in the teacher training program to emulate.

State level. The findings of this study should be presented at the state level to the appropriate educational bodies, such as the State Department of Education or the Board of Regents. Policy makers at that level should consider adopting a standardized formal course of study in the selection and utilization of instructional media. In addition, the decision makers should be encouraged to financially support such an adoption by allocating funds to equip the teacher training institutions with the software and hardware necessary for proper instruction. Furthermore, the policy leaders should be encouraged to allocate funds for school districts to purchase needed software and hardware that will enable the proper selection and utilization of mediated instruction in the classroom.

National level. The findings of this study need to be shared with various professional organizations, such as The Association of Educational Communication and Technology (AECT), and The Association for Supervision and Curriculum Development (ASCD), etc. In addition to formal presentations offered to the constituency, the promotion for and the adoption of formal course offerings in the selection and utilization of instructional media at all teacher training programs should be discussed and considered.

Recommendations for Further Study

Based on the analysis of the results of this study, the following recommendations are proposed for future research:

1. This study should be replicated, with larger samples, in other preservice teacher training programs to determine the attitudes of the preservice teacher toward the selection and utilization of instructional media.
2. A longitudinal study should be conducted, using the same or similar instruments contained in this study, of teachers who have previously received formal training in instructional media and who are in their third to fifth year of teaching, to determine their attitudes toward the selection and utilization of instructional media.
3. States that do not require formal training in the selection and utilization of instructional media should replicate this study with various preservice

teacher training programs to determine the present attitude of preservice teachers toward the selection and utilization of instructional media.

4. A study should be conducted to determine the extent to which media are being selected and utilized by teachers who have been formally trained, and teachers who have not been formally trained, in the selection and utilization of instructional media.

5. Research should be conducted to study the attitudes of experienced teachers toward instructional media and determine if their attitudes are related to the content of their teacher preparation programs.

6. Research should be conducted to determine if there is a relationship between course design and the selection and utilization of instructional media, i.e., does course design influence attitudes toward the selection and utilization of instructional media?

7. Studies should also be conducted to determine if there is a relationship between the presentation of a course and the attitude toward the selection and utilization of instructional media, i.e., does the way a course is taught affect attitudes toward the selection and utilization of instructional media?

8. Further research on barriers to the adoption of the selection and utilization of instructional media should be conducted.

9. A study should be conducted, at the professional level, to determine the effects of inservice training on those teachers who have previously received formal training in the selection and utilization of instructional media.

In summary, course experience related to formal training in the selection and utilization of instructional media does produce a positive attitude toward the use of technology in the classroom. Once the positive attitude has been developed it is not altered by student teaching.

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